

CLAIMS

What is claimed is:

1. A method for applying an optical coating to an article surface of an article, comprising the steps of:
 - providing a deposition substrate; thereafter
 - applying a first release system to the deposition substrate; thereafter
 - depositing the optical coating onto the deposition substrate, with the first release system between the optical coating and the deposition substrate, wherein the optical coating has a first face contacting the first release system, and a second face remote from the first face; thereafter
 - applying a second release system and a transfer substrate to the second face of the optical coating, wherein the first release system is dissolvable in a first-release-coating solvent that does not dissolve the second release system; thereafter
 - dissolving the first release system in the first-release-coating solvent to separate the optical coating from the deposition substrate, wherein the first face of the optical coating becomes an exposed free face; thereafter
 - furnishing the article having the article surface; thereafter
 - affixing the first face of the optical coating to the article surface; and thereafter
 - separating the transfer substrate from the second face of the optical coating.
2. The method of claim 1, wherein the step of providing a deposition substrate includes the step of
 - providing an organic deposition substrate.
3. The method of claim 1, wherein the step of applying a first release system includes the step of
 - applying an aluminum layer as the first release system.

4. The method of claim 1, wherein the step of depositing the optical coating includes the step of
depositing the optical coating as a multilayer coating.

5. The method of claim 1, wherein the step of applying a second release system and transfer substrate includes the step of
providing a compliant transfer substrate.

6. The method of claim 1, wherein the step of applying a second release system and transfer substrate includes the step of
providing a castable transfer substrate.

7. The method of claim 1, wherein the step of applying the second release system and transfer substrate includes the steps of:

applying the second release system to the second face of the optical coating, wherein the second release system has a first face contacting the second face of the optical coating, and a second face remote from the first face, and thereafter

affixing the transfer substrate to the second face of the optical coating, with the second release system between the transfer substrate and the second face of the optical coating.

8. The method of claim 1, wherein the step of applying the second release system and transfer substrate includes the step of

providing a release-and-transfer structure having the second release system integrated with the transfer substrate.

9. The method of claim 1, wherein the step of applying the second release system and transfer substrate includes the step of

providing a release-and-transfer structure having the second release system integrated with the transfer substrate, wherein the release-and-transfer structure is a polymeric releasable adhesive tape.

10. The method of claim 1, wherein the step of furnishing the article includes the step of

furnishing the article that is a component of a gas turbine engine.

11. The method of claim 1, wherein the step of furnishing the article includes the step of

furnishing a new-make article.

12. The method of claim 1, wherein the step of furnishing the article includes the step of

furnishing an article which has previously been in service.

13. The method of claim 1, wherein the step of affixing the first face includes the steps of:

positioning a bonding element between the first face of the optical coating and the article surface, and

pressing the bonding element, the first face, and the article surface together at an elevated temperature.

14. The method of claim 1, wherein the step of affixing the first face includes the steps of:

bonding a bonding element to the article surface, and thereafter

bonding the first face of the optical coating to the bonding element.

15. The method of claim 1, wherein the step of affixing the first face of the

optical coating to the article surface includes the steps of:

bonding the first face of the optical coating to a bonding element, and thereafter bonding the bonding element to the article surface.

16. The method of claim 1, wherein the step of affixing the first face includes the step of

heating and pressing the first face using an autoclave.

17. The method of claim 1, wherein the step of affixing the first face includes the step of

heating and pressing the first face using a vacuum bag and a general heat source.

18. The method of claim 1, wherein the step of affixing the first face includes the step of

heating and pressing the first face using a vacuum bag and a local heat source.

19. The method of claim 1, wherein the step of affixing the first face includes the step of

ironing the first face onto the article surface.

20. The method of claim 1, wherein the method includes the step of preparing the transfer substrate and optical coating as a plurality of tiles that are each affixed to the article surface in the step of affixing.

21. A method for applying an optical coating to an article surface of an article, comprising the steps of:

providing an organic deposition substrate; thereafter

applying a first release system to the deposition substrate; thereafter

depositing the optical coating onto the deposition substrate, with the first release system between the optical coating and the deposition substrate, wherein the optical coating

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has a first face contacting the first release system, and a second face remote from the first face; thereafter

providing a release-and-transfer structure having a second release system integrated with a transfer substrate; thereafter

applying the release-and-transfer structure to the second face of the optical coating, wherein the first release system is dissolvable in a first-release-coating solvent that does not dissolve the release-and-transfer structure; thereafter

dissolving the first release system in the first-release-coating solvent to separate the optical coating from the deposition substrate, wherein the first face of the optical coating becomes an exposed free face; thereafter

furnishing the article having the article surface; thereafter

affixing the first face of the optical coating to the article surface, the step of affixing including the steps of:

positioning a bonding element between the first face of the optical coating and the article surface, and

pressing the bonding element, the first face, and the article surface together at an elevated temperature; and

separating the transfer substrate from the second face of the optical coating.

22. The method of claim 21, wherein the step of applying a second release system and transfer substrate includes the step of

providing the release-and-transfer structure as a polymeric releasable adhesive tape.

23. A method for applying an optical coating to an article surface of an article, comprising the steps of:

depositing the optical coating onto a deposition substrate separate from the article surface;

furnishing the article having the article surface; and thereafter

transferring the optical coating from the deposition substrate to the article surface.

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24. The method of claim 23, wherein the step of transferring includes the step of bonding the optical coating to the article surface with a bonding element.